

Appl. No. 10/523,331
Amtd. Dated June 12, 2008
Reply to Office Action of December 12, 2007

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for manufacturing a device incorporated substrate having an insulating layer, a conductor pattern thereon, a void section formed therein, and an electric device housed in said void section and connected to said conductor pattern, said method comprising:

providing an insulating layer;

a void section forming step of forming a void section in said insulating layer;

providing a transfer sheet comprising a metallic base and a dissolvee metal layer over the metallic base, the transfer sheet being formed separate from, and un-connected to, said insulating layer;

a pattern forming step of forming a conductor pattern over one surface of said transfer sheet;

a pattern transfer step of adhering said transfer sheet and said insulating layer to each other with said conductor pattern therebetween;

a transfer sheet removal step for removing said transfer sheet from at least said conductor pattern;

a device housing step of housing said electric device within said void section, with said electric device connected to said conductor pattern, the device housing step occurring after the pattern transfer step and before the transfer sheet removal step; and

wherein neither the metallic base nor the dissolvee metal layer of the transfer sheet is removed prior to said transfer sheet removal step, and said transfer sheet removal step includes dissolving and removing at least a part of said transfer sheet, including at least the dissolve metal layer, and

wherein said pattern transfer step occurs after said pattern forming step, and said transfer sheet removal step occurs after said pattern transfer step.

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2. (Currently Amended) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

~~said transfer sheet and said dissolvee metal layer are layered so as to be separable with respect to said metal base material; and~~

removal of said transfer sheet during said transfer sheet removal step includes ~~a step of separating and removing said metallic base from said dissolvee metal layer, and a step of dissolving and removing the remaining~~ dissolvee metal layer.

3. (Original) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

said pattern forming step is done by an electroplating method.

4. (Currently Amended) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

said pattern forming step includes a step of, after said conductor pattern forming step, ~~a step of burying an insulating material in the gaps in said~~ formed conductor pattern and subsequently flattening the surface of said transfer sheet such that the surfaces of the conductor pattern and the insulating material are substantially flush.

5. (Previously Presented) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

an adhesive material is applied over one surface of said insulating layer prior to said pattern transfer step in order to aid in the adhesion of said patterned conductor to the insulating layer, the adhesive material being subjected to the same void forming step as the insulating layer.

6. (Previously Presented) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

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said device housing step includes a step of adhering said transfer sheet and said insulating layer to each other, and thereafter housing said electric device into said void section and connecting said electric device to said conductor pattern.

7. (Canceled)

8. (Original) The method for manufacturing a device-incorporated substrate as described in claim 2, characterized in that:

said dissolvee metal layer and said conductor pattern are made of different metal material, and said step of dissolving and removing said dissolvee metal layer is done by using an etchant which is able to dissolve said dissolvee metal layer but is unable to dissolve said conductor pattern.

9. (Original) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

said void section forming step includes a step of forming a through hole together with said void section, for connecting both surfaces of said insulating layer, and a step of filling conductive material into said through hole.

10. (Previously Presented) The method for manufacturing a device-incorporated substrate as described in claim 9, said method characterized by further comprising:

layering multiple ones of each of said formed device-incorporated substrates with electric connections formed via said filled through holes.

11. - 23. (Canceled)

24. (Previously Presented) The method for manufacturing a device-incorporated substrate as described in claim 2, characterized in that said

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transfer sheet further comprises an adhesive resin formed between said metallic base and said dissolvee metal layer.

25. (Previously Presented) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that said transfer sheet is at least 100 μ m thick in order to provide rigidity to the transfer sheet.

26. (Previously Presented) The method for manufacturing a device-incorporated substrate as described in claim 2, characterized in that said dissolvee metal layer is formed to a thickness of 5 μ m or less.

27. (Canceled)

28. (Previously Presented) The method for manufacturing a device-incorporated substrate as described in claim 2, characterized in that said transfer sheet further comprises a heat foaming layer formed between said metallic base and said dissolvee metal layer.

29. (Previously Presented) The method for manufacturing a device-incorporated substrate as described in claim 2, characterized in that said transfer sheet removal step further comprises a step of removing said metal base by a physical process prior to removing said dissolvee metal layer by said dissolving process.

30. (Previously Presented) The method for manufacturing a device-incorporated substrate as described in claim 6, further wherein said device housing step includes a sealing step of forming a seal resin layer between said conductor pattern and said electric device.